AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/838,695
Filing Date: April 19, 2001
Title: APPARATUS AND METHOD FOR PERSISTENT DISPLAY INTERFACE

Page 2
Dkt: BU1327/0033-064001

AMENDMENTS TO THE CLAIMS

1.   (Currently Amended) An apparatus for producing a perceptible representation of program data windows, comprising:

an arbiter adapted to:

(a)   ~~selecting~~ select a ~~dominant~~ program to be a dominant program from among a plurality of programs seeking a master persistence attribute to display a program data window ~~of the program~~ according to a predetermined priority ~~scheme~~ hierarchy, and

(b)   ~~assigning~~ assign the master persistence attribute to the ~~dominant~~ selected program,

wherein the ~~dominant~~ program data window of the selected program is ~~displays~~ displayed ~~data~~ concurrently with program data windows of other programs of the plurality of programs while not being obscured by the program data windows of the other programs and while overlapping at least one program data window of the other programs.

2.   (Currently Amended) The apparatus of claim 1, further comprising:

an access control table, operationally coupled with the arbiter, adapted to ~~containing~~ contain indicia representative of the predetermined priority ~~scheme~~ hierarchy.

3.   (Currently Amended) The apparatus of claim 2, further comprising:

a configuration application program, operationally coupled with the access control table, adapted to ~~configuring~~ configure the arbiter with the predetermined priority ~~scheme~~ hierarchy.

4.   (Currently Amended) The apparatus of claim 1, further comprising:

an I/O manager, operationally coupled with the arbiter, adapted to ~~communicating~~ communicate ~~the~~ display data for the perceptible representation between ~~an application~~ the plurality of ~~program~~ programs and a display.

5.   (Currently Amended) The apparatus of claim 4, further comprising:

a graphics device driver, operationally coupled with the I/O manager and the display, adapted to ~~transmit~~ provide the display data to the display.

6.   (Currently Amended) The apparatus of claim 1, further comprising:

a graphics device driver, operationally coupled with the arbiter, adapted to transmit the display data for the perceptible representation to the a display.

7.   (Currently Amended) The apparatus of claim 2, wherein the indicia include one of the a process ID (PID), a window ID (WID), a priority, revoked and repudiated credentials, an authentication token or key, a master persistence attribute authorization, descriptive text, a program status, a system status, an accessible display region, and an excluded displayed region.

8.   (Currently Amended) The apparatus claim 1, wherein the arbiter further comprises at least one of the a rules engine, a state machine, and a content-addressable memory that provides the predetermined priority scheme hierarchy for determining selecting the program to be the dominant program priority.

9.   (Currently Amended) The apparatus of claim 6, further comprising a gatekeeper adapted to determining selected select given programs ones of the plurality of programs to be granted access to the arbiter to receive a seek the master persistence attribute according to the predetermined access scheme priority hierarchy.

10.   (Currently Amended) A graphic display apparatus, comprising:

a gatekeeper determining adapted to selected select given programs ones of a plurality of programs to be granted a key to request a persistence attribute according to a predetermined priority scheme hierarchy, the persistence attribute enabling a program selected program of the given programs, upon receipt of the persistence attribute, to display a program data window of the selected program concurrently with program data windows of the other given programs while not being obscured by the program data windows of the other programs and while overlapping at least one program data window of the other given programs.

11.   (Currently Amended) The graphic display apparatus of claim 10, further comprising:

a graphics device driver, operationally coupled with the gatekeeper, that couples adapted to provide display data for the program data windows of the selected ones with given programs to a display.

12.   (Currently Amended) The graphic display apparatus of claim 11, further comprising:

an arbiter adapted to:

(a)   selecting a dominant application select a program program to be a dominant program from among the given programs selected ones seeking the master display persistence attribute, and

(b)   assigning assign the master persistence display attribute to the dominant selected program.

13.   (Currently Amended) The graphic display apparatus of claim 12, further comprising:

an access control table, operationally coupled with the arbiter, adapted to storing store indicia representative of the predetermined priority scheme hierarchy.

14.   (Currently Amended) The graphic display apparatus of claim 10, further comprising:

an I/O manager, operationally coupled with the gatekeeper, adapted to managing manage communication of graphical data between the selected ones given programs and a display.

15.   (Currently Amended) The graphic display apparatus of claim 10, further comprising:

an application manager, operationally coupled with the gatekeeper, adapted to preventing prevent unauthorized access to an operating system by the selected ones given programs.

16.   (Currently Amended) The graphic display apparatus of claim 15, further comprising:

a graphics device driver, operationally coupled with the application manager, adapted to transmit provide graphical data to display the program data windows of the given programs on the display.

17.   (Currently Amended) The graphics display apparatus of claim 10, further comprising:

a configuration application program, operationally coupled with the gatekeeper, adapted to configuring configure the gatekeeper with the predetermined priority scheme hierarchy.

18.   (Currently Amended) The graphic display apparatus of claim 10, further comprising:

a configuration table, operationally coupled with the gatekeeper, adapted to storing store an indicia representative of the predetermined priority scheme hierarchy.

19.   (Currently Amended) The apparatus of claim 18, wherein the indicia include on one of a process ID (PID), a window ID (WID), a priority, revoked and repudiated credentials, an authentication token or key, a master persistence attribute authorization, descriptive text, a program status, a system status, an accessible display region, and an excluded display region.

20.   (Currently Amended) A graphic display apparatus comprising:

(a)   a gatekeeper determining selected ones adapted to select given programs of a plurality of programs seeking to be granted a master persistence display attribute according to a predetermined access technique priority hierarchy, and

(b)   an arbiter; arbiter adapted to:

(1)   selecting select a dominant program to be a dominant program from among the given programs; and selected ones seeking the master persistence display attribute, and

(2)   ~~assigning~~ assign the master persistence attribute to the ~~dominant~~ selected program according to ~~a~~ the predetermined priority ~~scheme~~ hierarchy,

wherein the ~~dominant program~~ apparatus displays a program data window of the selected program concurrently with program data windows of other programs of the given programs while not being obscured by the program data windows of the other programs and while overlapping at least one program data window of the other programs.

21.   (Currently Amended) The graphic display apparatus of claim 20, further comprising:

one of (i) a configuration table, operationally coupled with at least one of the arbiter and the gatekeeper, adapted to ~~containing~~ contain first indicia representative of the predetermined priority ~~scheme~~ hierarchy, and (ii) an access control table, operationally coupled with at least one of the arbiter and the gatekeeper, adapted to ~~containing~~ contain second indicia representative of the predetermined priority ~~scheme~~ hierarchy.

22.   (Currently Amended) The graphic display apparatus of claim 20, further comprising:

a configuration application, operationally coupled with at ~~lest~~ least one of the configuration table and the access control table, adapted to ~~configuring~~ configure at least one of the arbiter and the gatekeeper.

23.   (Currently Amended) The graphic display apparatus of claim ~~19~~ 20, further comprising:

an I/O manager, operationally coupled with at least one of the arbiter and the gatekeeper, ~~for~~ adapted to ~~communicating~~ communicate ~~the~~ display data for the program data windows of the selected program and the other programs between ~~an~~ at least one application program and a display.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/838,695
Filing Date: April 19, 2001
Title: APPARATUS AND METHOD FOR PERSISTENT DISPLAY INTERFACE

Page 7
Dkt: BU1327/0033-064001

24.   (Currently Amended) The graphic display apparatus of claim 23, further comprising:

a graphics device driver, <u>operationally</u> coupled with the I/O manager and the display, ~~that~~ <u>adapted to</u> ~~transfers~~ <u>provide</u> the display data to the display.

25.   (Currently Amended) The graphic display apparatus of claim 24, further comprising:

a display buffer <u>operationally</u> coupled with the graphic ~~display~~ <u>device</u> driver.

26.   (Currently Amended) The graphic display apparatus of claim 20, further comprising:

a graphics device driver, <u>operationally</u> coupled with at least one of the arbiter and the gatekeeper, ~~that transfers~~ <u>adapted to provide</u> display data to a display.

27.   (Currently Amended) The graphic display apparatus of claim 26, further comprising:

a display buffer <u>operationally</u> coupled with the ~~graphic~~ <u>graphics device</u> ~~display~~ driver.

28.   (Currently Amended) The graphic display apparatus of claim 26, further comprising:

an I/O manager, <u>operationally</u> coupled with the ~~graphic~~ <u>graphics device</u> ~~display~~ driver, <u>adapted to</u> ~~communicating~~ <u>facilitate communication</u> between an application program and the display.

29.   (Currently Amended) The graphic display apparatus of claim 20 further comprising:

an application manager, <u>operationally</u> coupled with at least one of the gatekeeper and the arbiter, <u>adapted to</u> ~~preventing~~ <u>prevent</u> unauthorized access to an operating system by ~~a program~~ <u>the given programs</u>.

30.   (Currently Amended) The apparatus of claim 21, wherein at least one of the first indicia and the second indicia include one of a process ID (PID), a window ID (WID), a priority, revoked and repudiated credentials, an authentication token or key, a master persistence attribute authorization, descriptive text, a program status, a system status, an accessible display region, and an excluded display region.

31.   (Currently Amended) A ~~Graphics~~ graphics system ~~system,~~ comprising:

~~a.~~(a)   a video input adapted to ~~receiving~~ receive a graphical data signal;

~~b.~~(b)   a video output operationally coupled with a display;

~~c.~~(c)   a display controller operationally coupled with the video input ~~signal~~ and adapted to selectively ~~transmitting~~ transmit the graphical data signal to the video output; and

~~d.~~(d)   an arbiter operationally coupled with the display controller, the arbiter ~~effecting~~ adapted to effect the ~~selectively transmitting~~ selective transmission by granting a persistence ~~attribute~~ attribute, according to a predetermined priority ~~scheme~~ hierarchy, to a window for displaying data on the display, the display controller adapted to selectively ~~transmitting~~ transmit responsive to the arbiter,

wherein the video output is further adapted to ~~writes~~ write data to a set of pixel memory ~~locations~~ locations, which are later read by the display, and

wherein a window which has been granted the persistence attribute by the arbiter has exclusive access to a portion of the set of pixel memory locations in place of at least one other window which would otherwise have access to the portion of the set of pixel memory locations.

32.   (Currently Amended) The graphics system of claim 31, further comprising a CPU interface ~~for~~ adapted to operationally ~~coupling~~ couple the graphics system to a CPU, the CPU adapted to ~~receiving~~ receive display control signals and the arbiter adapted to ~~being~~ be responsive thereto.

33.   (Currently Amended) The graphics system of claim 32, wherein the CPU includes a gatekeeper, ~~the gatekeeper operably~~ operationally coupled with the arbiter and adapted to ~~transmitting~~ transmit the predetermined priority ~~scheme~~ hierarchy thereto.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/838,695
Filing Date: April 19, 2001
Title: APPARATUS AND METHOD FOR PERSISTENT DISPLAY INTERFACE

Page 9
Dkt: BU1327/0033-064001

34.   (Currently Amended) The graphics system of claim 32, wherein the CPU includes a gatekeeper, the gatekeeper operably operationally coupled with the arbiter and adapted to selecting select display control signals having access to the arbiter.

35.   (Currently Amended) The graphics system of claim 34, further comprising an arbiter access control table configured adapted to receive indicia relevant to the predetermined priority scheme hierarchy.

36.   (Currently Amended) The graphics system of claim 35, wherein the indicia include one of a process ID (PID), a window ID (WID), a priority, revoked and repudiated credentials, an authentication token or key, a master persistence attribute authorization, descriptive text, a program status, a system status, an accessible display region, and an excluded display region.

37.   (Currently Amended) A method of assigning a persistence attribute to at least one of a plurality of dominant programs, the method comprising:

(a)   requesting a master persistence attribute from a gatekeeper;

(b)   assigning a set of priority rules to the gatekeeper via a configuration application program;

(c)   the gatekeeper granting keys to selected dominant application given programs of the plurality of program with the gatekeeper, the keys adapted to allowing allow the given programs access to an arbiter;

(d)   the arbiter examining an arbiter access control table with the arbiter, the arbiter access control table being adapted to storing store a predetermined priority scheme hierarchy; and

(e)   the arbiter assigning the persistence attribute to the at least one a selected program of a plurality of dominant application the given programs, the persistence attribute adapted to granting grant the selected program access to a dominant display window,

wherein at least one of the plurality of dominant application programs the dominant display window is adapted to displays display data of the selected program concurrently with

display windows of other programs of the given programs while not being obscured by the display windows of the other programs and while overlapping at least one of the display windows of the other programs.

38.   (Currently Amended) A computer program product recorded on a computer readable medium for assigning a master persistence attribute to at least one of a selected program of a plurality of programs, the computer program product comprising:

(a)   computer readable program code that, when executed, by which provides a gatekeeper adapted to grants grant an access token to the selected plurality of programs, the access token adapted to allowing allow access to an arbiter according to a predetermined access schemehierarchy; and

(b)   computer readable program code by which the arbiter assigns the master persistence attribute to a dominant one of the selected programs program, thereby granting access to a preselected dominant display window,

wherein the dominant program displays display window is adapted to display data of the selected program concurrently with display windows of other programs while not being obscured by the display windows of the other programs and while overlapping at least one display window of the other programs.

39.   (Currently Amended) The computer program product of claim 38, further comprising computer readable program code by which the arbiter examines an arbiter access control table adapted to storing store the predetermined access scheme hierarchy.

40.   (Currently Amended) The computer program product of claim 39, further comprising computer readable program code which adapted to assigns assign a set of access rules to the gatekeeper and to assigns assign a set of priority rules to the arbiter, via using a configuration application program.

AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 09/838,695
Filing Date: April 19, 2001
Title: APPARATUS AND METHOD FOR PERSISTENT DISPLAY INTERFACE

Page 11
Dkt: BU1327/0033-064001

41.   (Currently Amended) A method of assigning a master persistence display attribute to ~~at least one or~~ a selected application program of a plurality of ~~dominant~~ application programs, the method comprising:

(a)   requesting the persistence attribute from a gatekeeper;

(b)   ~~the gatekeeper~~ accessing, with the gatekeeper, a configuration table adapted to ~~storing~~ store a predetermined priority ~~scheme~~ hierarchy;

(c)   ~~the gate keeper~~ granting, with the gatekeeper, keys to ~~selected dominant~~ given application programs of the plurality of programs;

(d)   ~~the selected dominant application programs~~ applying the keys, with the given application programs, to access an arbiter ~~which~~ adapted to ~~examines~~ examine an arbiter access control table adapted to ~~storing~~ store the predetermined priority ~~scheme~~ hierarchy; and

(e)   ~~the arbiter~~ assigning, with the arbiter, the master persistence display attribute to the ~~at least one of a plurality of dominant~~ selected application ~~programs~~ program, the master persistence attribute adapted to ~~granting~~ grant the selected program access to a dominant display window,

wherein ~~at least one of the plurality of dominant application~~ the selected ~~programs~~ program displays data in the dominant display window concurrently with display windows of other programs of the given programs while not being obscured by the display windows of the other programs and while overlapping at least one of the display windows of the other programs.

42.   (Currently Amended) An apparatus for producing a ~~perceptiable~~ perceptible representation of program data windows, the apparatus comprising an arbiter ~~that~~ adapted to ~~selects~~ select a ~~dominant~~ program to be a dominant program from among a plurality of programs seeking a master persistence attribute to display a program data window ~~of the program~~ according to a predetermined priority ~~technique~~ hierarchy, and to ~~assigns~~ assign the master persistence attribute to the ~~dominant~~ selected program,

wherein the perceptible representation of program data windows is rendered on one of a computer, a communication pad, a telephony device, a handheld remote control device, and a handheld computing device, and

wherein the ~~dominant~~ selected program displays a dominant program data window

concurrently with program data windows of other programs while not being obscured by the

program data window of the other programs and while overlapping at least one program data

window of the other programs.

43.   (Currently Amended) The apparatus of claim 42 wherein ~~the~~ a medium by which

data is communicated to the apparatus ~~includes~~ comprises one of a wireless/RF channel, a wire-

based channel, a cable-based channel, and a fiberoptic channel.

44.   (Canceled)